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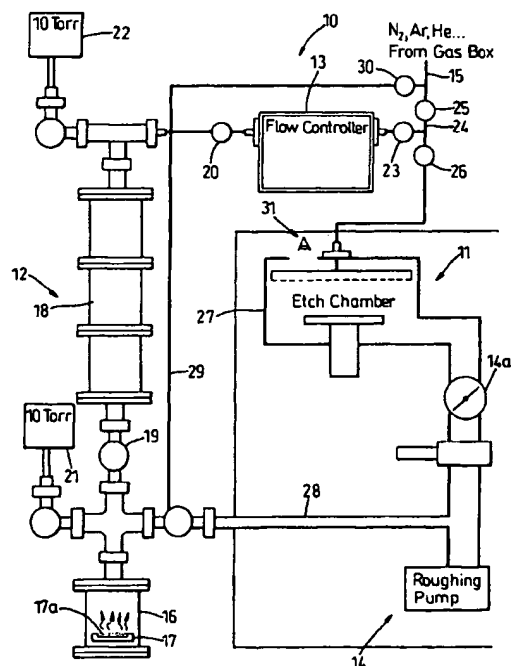
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### (54) Method and apparatus for etching a workpiece

(57) An  $\text{XeF}_2$  source 12 comprises a  $\text{XeF}_2$  source chamber 16, which includes a tray or ampoule 17 for  $\text{XeF}_2$  crystals 17a, a reservoir 18 via valve 19, a flow controller 13 fed by the reservoir 18 and a valve 20 be-

tween the reservoir 18 and the controller 13. Pressure sources 21 and 22 are provided respectively to maintain the reservoir 18 and the source chamber 16 at the sublimation pressure of  $\text{XeF}_2$ . The arrangement allows for a steady supply of  $\text{XeF}_2$  to an etching chamber.



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# EUROPEAN SEARCH REPORT

Application Number  
EP 98 30 3196

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
E	PATENT ABSTRACTS OF JAPAN vol. 1998, no. 13, 30 November 1998 (1998-11-30) & JP 10 209088 A (MITSUBISHI ELECTRIC CORP), 7 August 1998 (1998-08-07) * abstract *	1-3,6,8	H01J37/32
A	PATENT ABSTRACTS OF JAPAN vol. 010, no. 325 (E-451), 6 November 1986 (1986-11-06) & JP 61 134019 A (NEC CORP), 21 June 1986 (1986-06-21) * abstract *	1,6	
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			H01J
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 25 November 1999	Examiner Schaub, G
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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ANNEX TO THE EUROPEAN SEARCH REPORT  
ON EUROPEAN PATENT APPLICATION NO.

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The members are as contained in the European Patent Office EDP file on  
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25-11-1999

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
JP 10209088 A	07-08-1998	NONE	
JP 61134019 A	21-06-1986	NONE	

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

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